

# Solvent human exposure database guidance

May 2021

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# Database guide

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## Getting Started

Open any internet explorer (Google Chrome recommended) and open new window

Type <https://esig.iom-world.co.uk/> or follow the link from the <https://www.esig.org/> website

Home Page will appear with six main tabs on the top menu:

- Background: Brief information about the ESIG database
- Contact: Contact details for general queries and technical support with the system
- Search: Page (requires user login) to search, query, view, print and export citations data.
- Download User Manual: Link to download latest user manual
- Login: Page for registered users to login.
- Register: Page for new users to register.

 EUROPEAN  
SOLVENTS INDUSTRY  
GROUP

Background   Contact   Search   Download User Manual

Login   Register

### About

**Background of ESIG database:**

ESIG has funded the development of an on-line searchable database of human exposure data for solvent end-use applications. This work has been completed in collaboration with IOM, Edinburgh.

The tool originates from a database initially developed in MS Access by Caldwell et al (2000)\* to store human exposure information related to selected solvent end-use applications from the literature published between 1961 to 1998. A further review of the literature published during 1998 -2005 was undertaken, with the relevant data being extracted and stored using the original database structure. To ensure consistency with the earlier work undertaken by Caldwell and colleagues, similar search methodology and quality criteria approaches were used.

To bring the contents of the database up to date, a further review of the literature published between 2006 and 2019, has been carried out. Whilst the previous reviews had focused on occupational exposure, the most recent one also included consumer and experimental / simulation studies. In addition, the structure of the database has also been reviewed, updated and standardized in order to improve "database normalisation", reduce data redundancy, potential inconsistencies in data and help speeding-up database operations. For instance, additional fields, look-up codes / variables have been added to improve data consistency and integrity. To facilitate greater visibility and access, the MS Access database application has also been transferred into a web-based system to allow users access (following registration) via their internet browser.

The current on-line version of the database contains data extracted from 310 publications.

## How to Register

Click on the 'Register' tab from the top menu

Enter all the mandatory details.

Press 'Register'

Once registered successfully, you will be presented with a welcome message and you can start browsing the database.

### **Notes:**

Your username should be same as your email address.

Your username/email should not have been registered before.

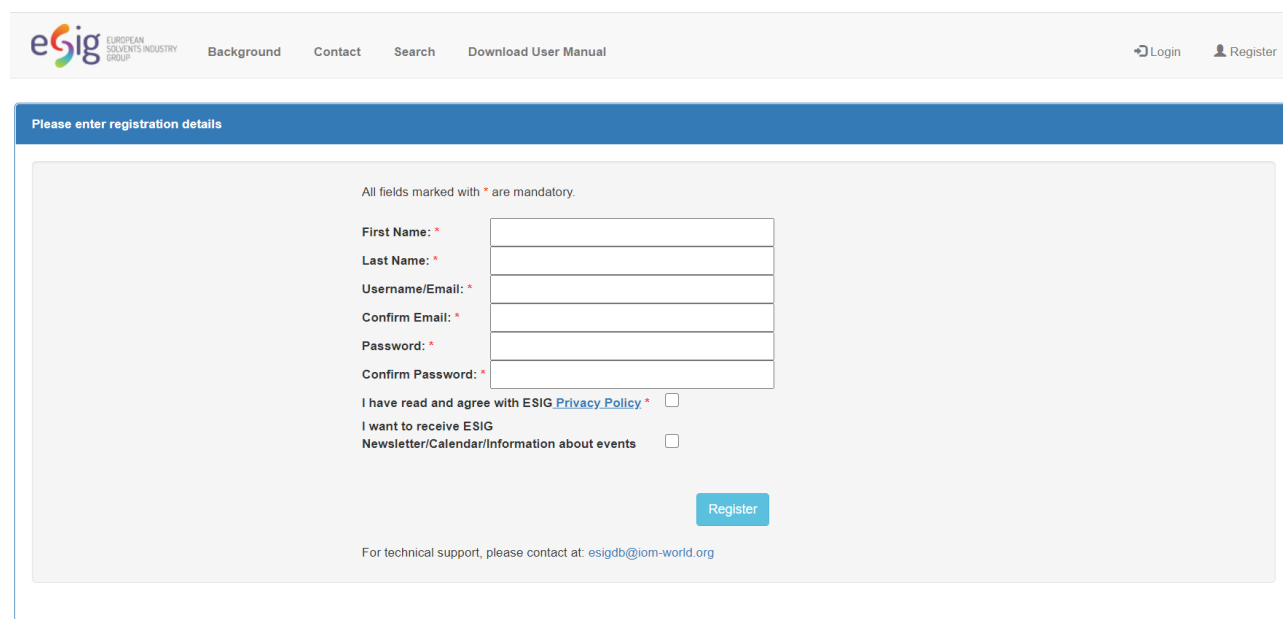
You need to enter email/username twice to confirm it.

You need to enter password twice to confirm it.

Password is case sensitive.

Your actual password is not stored in the system. It will be masked with the password hashing technique which replaces the original password text with a random string.

If you have any issues with registration then please contact the technical support details provided on the page.



The screenshot shows the ESIG registration page. At the top, there is a navigation bar with the ESIG logo (European Solvents Industry Group) and links for Background, Contact, Search, and Download User Manual. On the right side of the navigation bar are links for Login and Register. Below the navigation bar is a blue header that says "Please enter registration details". The main content area is a light gray box containing the registration form. The form has the following fields: First Name (mandatory), Last Name (mandatory), Username/Email (mandatory), Confirm Email (mandatory), Password (mandatory), and Confirm Password (mandatory). Below these fields are two checkboxes: "I have read and agree with ESIG Privacy Policy" and "I want to receive ESIG Newsletter/Calendar/Information about events". A blue "Register" button is located at the bottom right of the form. At the bottom of the form, there is a line of text: "For technical support, please contact at: esigdb@iom-world.org".

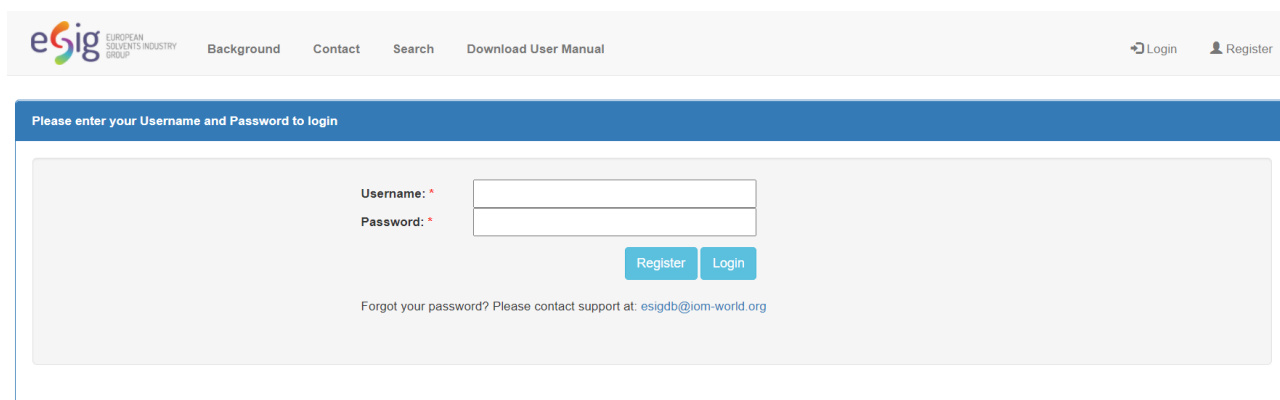
## How to Login

Click on the 'Login' tab from the top menu

Enter your credentials email/username and password.

Press 'Login'

You will be directed to search page where you can browse all the records.



esig EUROPEAN SOLVENTS INDUSTRY GROUP

Background Contact Search Download User Manual

Login Register

Please enter your Username and Password to login

Username: \*

Password: \*

Register Login

Forgot your password? Please contact support at: [esigdb@iom-world.org](mailto:esigdb@iom-world.org)

## Searching and filtering the records


Once logged in, please click on the 'Search' tab from the top menu

You will be directed to the search page with list of all the available citations and option to filter the records.

You can filter the records by following options:

- Measured Substance
- SNAP Code Overall
- SNAP Code
- Publication Year
- Study Setting
- Overall Data Quality
- Caldwell Data Quality

Select you parameters and press 'Search' button to filter the records.


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Please use the search menu to view citation sample results data.

Search Filters

Please select your filter options and press 'Search'. Press 'Export' to generate Excel file of your filtered results. Press 'Clear' to remove search filters.

Measured Substance:

SNAP Code Overall:

SNAP Code:

Press Ctrl + [Your Selection] for multiple selections

Publication Year:

From: To:

Study Setting:

Overall Data Quality:

Caldwell Data Quality:

Download User Guide

Export

Clear

Search

You will be presented with list of all the available records based on your search criteria, with basic details of Citation and Activity.

Press 'Clear' to remove the search/filter criteria.

### Notes:

Each record/result represents an activity within a citation.

Total number of results found for search operation will be displayed on top.

## Viewing the records

To view the searched/filtered records, press 'View Details' button, which is available for each individual record.

Activity: 704 Automotive spray painting

Citation ID: 323  
Publication Title: Reduced exposure to organic solvents by use of water-based paint systems in car repair shops.  
Publication Name: INT. ARCH. OCCUP. ENVIRON. HEALTH  
Publication Year: 2004 | Publication Volume: 77 | Publication Page Start: 31 | Publication Page End: 38  
Measured Substance: 2,6-dimethylheptan-4-one (DIBK) 108-83-8  
SNAP Code/ Area: 60101 Paint application : manufacture of automobiles Automotive spray painting, dipping, curtain coating, electrostatic spraying  
Study Setting:

View Details

Warning: Details page opens in new window. Please allow pop-ups if blocked. For more details, please see the 'Viewing the Records' section of user manual.

This will show Activity page with the following details:

- Citation Details
- Activity Details
- Risk Measurement Measures
- Solvent Products and Solvent Ingredients
- Samples and Sample results

**Publication Name:** INT. ARCH. OCCUP. ENVIRON. HEALTH**Citation ID:** 323**Publication Title:** Reduced exposure to organic solvents by use of water-based paint systems in car repair shops.**Publication Year:** 2004 | **Publication Volume:** 77 | **Publication Page Start:** 31 | **Publication Page End:** 38**First Author:****Authors List:** Bratveit M.; Hollund B.E.; Moen B.E.;**Country:** NORWAY | **Country First Author:****Study Setting:** | **Time Period:****Language:****Study Reason:** Exposure Assessment

**Abstract:** Objective. The objective of this study was to determine to what extent the substitution of solvent-based paint by water-based paint has reduced potential exposure to organic solvents for spray painters in car repair shops. Methods. Full-shift personal air sampling (n=79) was carried out over 3 consecutive days in eight car repair shops. Blood samples on the Monday morning (n=26) and at the end of the shift on the Wednesday (n=26), were analysed for organic solvents by headspace techniques. Results. Toluene was the organic solvent detected at the highest geometric mean concentration in air samples when solvent-based paint systems were used (0.8 ppm), whereas xylene was found at the highest level when water-based systems were used (0.25 ppm). Toluene, isopropanol, acetone and butyl acetate were detected at higher concentrations when solvent-based paint was used than when water-based paint was employed. The additive factor, based on Norwegian limit values, was three-times higher for the painters using solvent-based paint (0.15) than for those using water-based paint (0.05). On Wednesday after shift the geometric mean of toluene in blood was significantly higher for the painters using solvent-based paint (0.044 mug/ml) than for the painters using water-based paint (0.007 mug/ml). There was a significant correlation between toluene in personal air samples and toluene in blood samples taken at the end of the shift on the same day. Conclusions. When solvent-based paint systems were used the additive factor for organic solvent exposure was three-times higher than when water-based systems were employed. The exposure levels of the organic solvents were well below the Norwegian limit values. The significant correlation between the toluene concentration in air and blood samples indicated that the uptake of organic solvents was correspondingly reduced. At the levels of organic solvents presently described the risk of acute and chronic health effects caused by organic solvents is low.

**Notes:****Caldwell Data Quality:** Fair | **Overall Data Quality:**[Update](#)[Print](#)**Activity:** Automotive spray painting**SNAP Code/Product Area:** 60101 Paint application : manufacture of automobiles**Duration Of Activity:** | **Number Of Workers:** 29 | **Type Of Solvent Product Used:****Notes:****Solvents Used:**

Solvent Product	Solvent Ingredient	Percentage Range	CAS No	Grouping Low	Grouping High	Notes
PAINT & SOLVENTS	Aromatic Naphtha 60/120		No CAS Available			

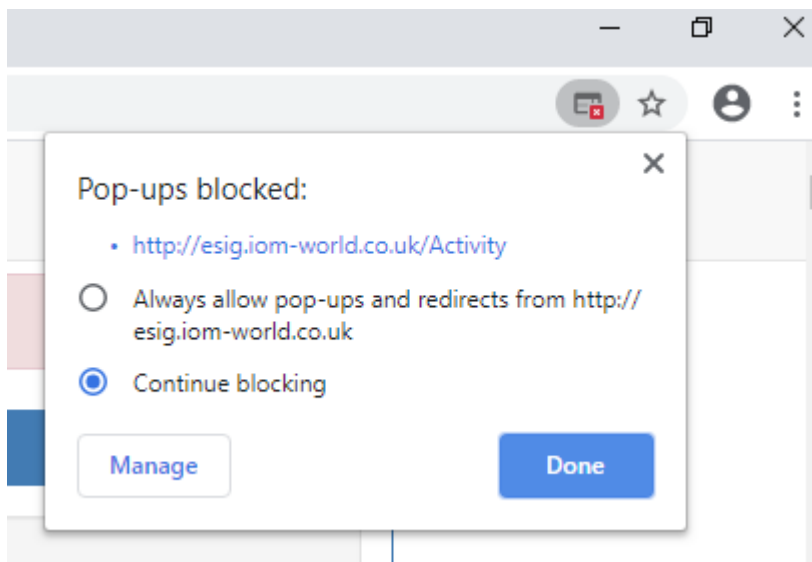
**Risk Management Measures:**

Environment	Ventilation	Engineering Control	PPE	RPE	Notes
		general building ventilation (passive)			
		general building ventilation (mechanical)			
		other (free text)			Spray Booth
			respiratory protection		

Samples ID: 2705																
<b>Sample Desc:</b> <b>Strategy:</b> Targetted <b>Sample Method:</b> Pump & Tube   <b>Analytical Method:</b> GC-FID   <b>Notes:</b>																
ID	Type	Solvent Name	Duration	TWA	Sample Year	No Of Samples	Ref Value Cited	Ref Value	Ref Unit	Authority	No Of Samples < LOD	Perc Of Samples < LOD	LOD	LOD Unit	LOQ	LOQ Unit
15057	Static	Toluene	28	<input type="checkbox"/>		6	No	25	ppm	NORWEGIAN DIRECTORATE OF LABOR INSPECTION						
15058	Static	Toluene	37	<input type="checkbox"/>		6	No	25	ppm	NORWEGIAN DIRECTORATE OF LABOR INSPECTION						
15059	Personal	Toluene	411	<input type="checkbox"/>		9	No	25	ppm	NORWEGIAN DIRECTORATE OF LABOR INSPECTION						
15060	Personal	Toluene	419	<input type="checkbox"/>		6	No	25	ppm	NORWEGIAN DIRECTORATE OF LABOR INSPECTION						
15061	Personal	Toluene	459	<input type="checkbox"/>		5	No	25	ppm	NORWEGIAN DIRECTORATE OF LABOR INSPECTION						
15062	Personal	Toluene	452	<input type="checkbox"/>		15	No	25	ppm	NORWEGIAN DIRECTORATE OF LABOR INSPECTION						
15063	Personal	Toluene	440	<input type="checkbox"/>		11	No	25	ppm	NORWEGIAN DIRECTORATE OF LABOR INSPECTION						
15064	Personal	Toluene	443	<input type="checkbox"/>		3	No	25	ppm	NORWEGIAN DIRECTORATE OF LABOR INSPECTION						

### Notes:

Viewing the activity details opens up a new tab/window on the browser. Depending on your security settings, this may be blocked. To enable viewing details page, please allow pop-ups from this website.



## Printing the records

To print the records, please use the filtering options from the search page to filter the records.

Click on the 'View Details' button to view the citation, activity and sample results



Activity: 704 Automotive spray painting

Citation ID: 323

Publication Title: Reduced exposure to organic solvents by use of water-based paint systems in car repair shops.

Publication Name: INT. ARCH. OCCUP. ENVIRON. HEALTH

Publication Year: 2004 | Publication Volume: 77 | Publication Page Start: 31 | Publication Page End: 38

Measured Substance: 2,6-dimethylheptan-4-one (DIBK) 108-83-8


SNAP Code/ Area: 60101 Paint application : manufacture of automobiles Automotive spray painting, dipping, curtain coating, electrostatic spraying

Study Setting:


Warning: Details page opens in new window. Please allow pop-ups if blocked. For more details, please see the 'Viewing the Records' section of user manual.

[View Details](#)

Press the 'Print' to print the all the details in PDF format.



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Publication Name: INT. ARCH. OCCUP. ENVIRON. HEALTH

Citation ID: 323

Publication Title: Reduced exposure to organic solvents by use of water-based paint systems in car repair shops.

Publication Year: 2004 | Publication Volume: 77 | Publication Page Start: 31 | Publication Page End: 38

First Author:

Authors List: Bratveit M.; Hollund B.E.; Moen B.E.;

Country: NORWAY | Country First Author:

Study Setting: | Time Period:

Language:

Study Reason: Exposure Assessment

Abstract: Objective. The objective of this study was to determine to what extent the substitution of solvent-based paint by water-based paint has reduced potential exposure to organic solvents for spray painters in car repair shops. Methods. Full-shift personal air sampling (n=79) was carried out over 3 consecutive days in eight car repair shops. Blood samples on the Monday morning (n=26) and at the end of the shift on the Wednesday (n=26), were analysed for organic solvents by headspace techniques. Results. Toluene was the organic solvent detected at the highest geometric mean concentration in air samples when solvent-based paint systems were used (0.8 ppm), whereas xylene was found at the highest level when water-based systems were used (0.25 ppm). Toluene, isopropanol, acetone and butyl acetate were detected at higher concentrations when solvent-based paint was used than when water-based paint was employed. The additive factor, based on Norwegian limit values, was three-times higher for the painters using solvent-based paint (0.15) than for those using water-based paint (0.05). On Wednesday after shift the geometric mean of toluene in blood was significantly higher for the painters using solvent-based paint (0.044 mug/ml) than for the painters using water-based paint (0.007 mug/ml). There was a significant correlation between toluene in personal air samples and toluene in blood samples taken at the end of the shift on the same day. Conclusions. When solvent-based paint systems were used the additive factor for organic solvent exposure was three-times higher than when water-based systems were employed. The exposure levels of the organic solvents were well below the Norwegian limit values. The significant correlation between the toluene concentration in air and blood samples indicated that the uptake of organic solvents was correspondingly reduced. At the levels of organic solvents presently described the risk of acute and chronic health effects caused by organic solvents is low.

Notes:

Caldwell Data Quality: Fair | Overall Data Quality:

Activity: Automotive spray painting

SNAP Code/Product Area: 60101 Paint application : manufacture of automobiles

Duration Of Activity: | Number Of Workers: 29 | Type Of Solvent Product Used:

Notes:

[Update](#)
[Print](#)

This will create a PDF document in your downloads folder (depending on your browser)

## Exporting the records


To export the data in Excel format, please go to the search page to filter the records.

You can filter the records by following options:

- Measured Substance
- SNAP Code Overall
- SNAP Code
- Publication Year
- Study Setting
- Overall Data Quality
- Caldwell Data Quality

Select your parameters and press 'Search'.

Click on the 'Export' button to export the searched/filtered results in Excel format.


[Background](#)
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[Search](#)
[Download User Manual](#)
[New Citation](#)
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Logout

111 Citations / 294 Activities Found

Search Filters

Please select your filter options and press 'Search'. Press 'Export' to generate Excel file of your filtered results. Press 'Clear' to remove search filters.

Measured Substance:

Xylene (1330-20-7)

?

SNAP Code Overall:

?

SNAP Code:

Press Ctrl + [Your Selection] for multiple selections

?

Publication Year:

From: To:

?

Study Setting:

?

Overall Data Quality:

?

Caldwell Data Quality:

?

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Export

Clear

Search

This will create an Excel document in your downloads folder (depending on your browser) with date/time stamp.

CitationID																	
CitationID	TitleOfPublication	PublicationName	PublicationVolume	PublicationPage	PublicationPage	PublicationCountry	ActivityID	SolventPri	Activity	SNAPCode	ProductAr	Task	StudySetti	SampleID	Strategy	SampleMe	
138	Emission characteristics and proba	Journal of Cleaner Production	208	1096	1108	2019 China	154	Glue	Wooden f	60108	Other ind	Aeronauti	Occupatic	696	Represent EM-500, A		
138	Emission characteristics and proba	Journal of Cleaner Production	208	1096	1108	2019 China	155	Veneer, w	Wooden f	60108	Other ind	Aeronauti	Occupatic	697	Represent EM-500, A		
138	Emission characteristics and proba	Journal of Cleaner Production	208	1096	1108	2019 China	156	Paint and	Wooden f	60108	Other ind	Aeronauti	Occupatic	698	Represent EM-500, A		
138	Emission characteristics and proba	Journal of Cleaner Production	208	1096	1108	2019 China	157	Paint and	Wooden f	60108	Other ind	Aeronauti	Occupatic	699	Represent EM-500, A		
138	Emission characteristics and proba	Journal of Cleaner Production	208	1096	1108	2019 China	158	Paint and	Wooden f	60108	Other ind	Aeronauti	Occupatic	700	Represent EM-500, A		
138	Emission characteristics and proba	Journal of Cleaner Production	208	1096	1108	2019 China	159	None	Wooden f	60108	Other ind	Aeronauti	Occupatic	701	Represent EM-500, A		
90	Comparative health risk of inhaled	Environmental Science and Po	26	33906	33916	2019 Taiwan	37	Paint, tolu	Spray pain	60106	Paint application	: bc	Occupatic	517	Not state: Charcoal: f		
90	Comparative health risk of inhaled	Environmental Science and Po	26	33906	33916	2019 Taiwan	37	Paint, tolu	Spray pain	60106	Paint application	: bc	Occupatic	518	Not state: Charcoal: f		
133	Assessment of the inhalation risks i	Environmental Science and Po	25	17137	17143	2018 Not state:	122	Toner	Printing	60403	Printing in Newspaper	Occupatic	688	After 1-hr A tube (Ag			
133	Assessment of the inhalation risks i	Environmental Science and Po	25	17137	17143	2018 Not state:	122	Toner	Printing	60403	Printing in Newspaper	Occupatic	689	After 1-hr A tube (Ag			
133	Assessment of the inhalation risks i	Environmental Science and Po	25	17137	17143	2018 Not state:	122	Toner	Printing	60403	Printing in Newspaper	Occupatic	690	After 1-hr A tube (Ag			
133	Assessment of the inhalation risks i	Environmental Science and Po	25	17137	17143	2018 Not state:	122	Toner	Printing	60403	Printing in Newspaper	Occupatic	691	After 1-hr A tube (Ag			
133	Assessment of the inhalation risks i	Environmental Science and Po	25	17137	17143	2018 Not state:	122	Toner	Printing	60403	Printing in Newspaper	Occupatic	692	After 1-hr A tube (Ag			
133	Assessment of the inhalation risks i	Environmental Science and Po	25	17137	17143	2018 Not state:	122	Toner	Printing	60403	Printing in Newspaper	Occupatic	693	After 1-hr A tube (Ag			
133	Assessment of the inhalation risks i	Environmental Science and Po	25	17137	17143	2018 Not state:	122	Toner	Printing	60403	Printing in Newspaper	Occupatic	694	After 1-hr A tube (Ag			
133	Assessment of the inhalation risks i	Environmental Science and Po	25	17137	17143	2018 Not state:	122	Toner	Printing	60403	Printing in Newspaper	Occupatic	695	After 1-hr A tube (Ag			
125	Measurements and health impacts	Archives of Environmental & C	73	169	175	2018 Thailand	175	Not state: Photocop		60403	Printing in Newspaper	Occupatic	573	Volunteer Activated I			
125	Measurements and health impacts	Archives of Environmental & C	73	169	175	2018 Thailand	175	Not state: Photocop		60403	Printing in Newspaper	Occupatic	574	Volunteer Activated I			
125	Measurements and health impacts	Archives of Environmental & C	73	169	175	2018 Thailand	175	Not state: Photocop		60403	Printing in Newspaper	Occupatic	575	Volunteer Activated I			
125	Measurements and health impacts	Archives of Environmental & C	73	169	175	2018 Thailand	175	Not state: Photocop		60403	Printing in Newspaper	Occupatic	576	Volunteer Activated I			
125	Measurements and health impacts	Archives of Environmental & C	73	169	175	2018 Thailand	175	Not state: Photocop		60403	Printing in Newspaper	Occupatic	577	Volunteer Activated I			
125	Measurements and health impacts	Archives of Environmental & C	73	169	175	2018 Thailand	175	Not state: Photocop		60403	Printing in Newspaper	Occupatic	578	Volunteer Activated I			
125	Measurements and health impacts	Archives of Environmental & C	73	169	175	2018 Thailand	175	Not state: Photocop		60403	Printing in Newspaper	Occupatic	579	Volunteer Activated I			
125	Measurements and health impacts	Archives of Environmental & C	73	169	175	2018 Thailand	175	Not state: Photocop		60403	Printing in Newspaper	Occupatic	580	Volunteer Activated I			

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- Occupational Hygiene
- Laboratory Services
- Nanotechnology Safety
- Training Services
- Consultancy

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Chesterfield S41 0TZ

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